

Michigan Department of Agriculture and Rural Development

Five-Year Capital Outlay Plan

I. Mission Statement

The Michigan Department of Agriculture & Rural Development's (MDARD) mission is to assure the food safety, agricultural, environmental, and economic interests of the people of the State of Michigan are met through service, partnership, and collaboration. MDARD administers a diverse array of programs that provide oversight and enable new opportunities for Michigan's \$101.2 billion food and agriculture industry and protects Michigan residents on a daily basis. Priorities of the department include assuring food safety, protecting animal and plant health, sustaining environmental stewardship, providing consumer protection, and enabling rural development.

II. Programming Changes

MDARD has partnered with the food and agriculture industry to develop these 6 primary goals:

- Increase the economic impact of the food and agriculture industry from \$101.2 billion to \$125 billion
- Expand agricultural exports from \$3.53 billion to \$4.25 billion
- Improve talent attraction to meet workforce needs
- Assure consumer confidence in Michigan produced food by increasing current facility compliance from 58% to 95%
- Increase environmentally sustainable food and agriculture systems by increasing the number of farm verifications from 2,949 to 6,000
- Increase industry access to essential, non-transportation infrastructure

Reaching the food and agriculture industry's goals is dependent on the implementation of MDARD's underlying food safety and consumer protection mission. Both the Geagley Laboratory and Heffron Laboratory provide regulatory testing for many of the department's core programs.

With the increased consumption of fresh fruits and vegetables in recent years, the number of foodborne illness outbreaks linked to fresh produce reported by the Center for Disease Control (CDC) has increased. The CDC estimates that each year roughly 1 in 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of foodborne illness diseases.

The Geagley Laboratory provides testing and analysis of food and agricultural products to minimize the risks to the human food supply. The Pesticide and Plant Pest Management Division's Plant Pathology Laboratory and Greenhouse facility, located adjacent to MDARD's

Geagley Laboratory, performs testing and analysis in support of certification and export. Plant Pathology conducts virus free certification of blueberry and stone fruit plants to help growers obtain disease-free plants for export and domestic markets.

The Heffron Laboratory oversees the department's Motor Fuel Quality Program and Weights and Measures Program. The Heffron Laboratory responds to consumer fuel complaints and monitors the quality of fuels at retail gas stations, distribution centers, and refineries to ensure that gasoline sold in the State of Michigan meets minimum quality standards and environmental requirements. The Weights and Measures Program is responsible for ensuring that consumers receive what they are paying for when buying or selling any commodity based on weight, measure, or count, such as deli meat from the grocery store or grass seed from the home improvement store.

Food safety and consumer protection are anticipated to remain high priorities of Michigan residents in the future. MDARD's laboratory structure will continue to serve an integral role in assuring the food and agriculture industry meets its economic potential while maintaining a quality food safety network for Michigan residents.

III. Facility Assessment

The following independent facility assessments have been performed for the Geagley Laboratory in East Lansing. Information from the assessments has been incorporated into the five year plan, including opportunities for energy efficiencies and structural upgrades.

- 2004 Risk Assessment - FM Global
- 2004 Facility Assessment - Fishbeck, Thompson and Huber
- 2007 Facility Assessment - Keith Paasch, Building Operations Director, Department of Management and Budget
- 2009 Security Assessment - Sgt. James Leece, Michigan State Police; Deputy Police Chief Juli Liebler, East Lansing Police; and Fire Chief Randy Talifarro, East Lansing Fire Department
- 2010 Facility Assessment - William T. Rose, P. E. of Century A & E Facilities Design

Geagley Laboratory

MDARD's Geagley Laboratory is located at 1615 South Harrison in East Lansing, Michigan. The Geagley Laboratory was built in 1957 with an addition for motor fuel testing built in 1990. The greenhouse facilities were built in 1966 and the poly house structure was built in the 1990's. The Geagley Laboratory includes 52,800 square feet located on 5.2 acres and has an estimated replacement value of \$30 million. In partnership with federal, state, and local entities, the Geagley Laboratory provides unique analytical services that protect the health, safety, and welfare of Michigan residents and enhance the food and agriculture industry.

a) Building Utilization Rates

The Geagley Laboratory is utilized year-round on week days and weekends. It is utilized at all hours and any day of the week for rapid response to food or animal health emergencies and to carry out required testing to meet statutory requirements and programmatic needs of the Michigan Department of Agriculture and Rural Development. The Geagley Lab also houses the MDARD Call Center and Central Licensing Unit. Testing services provided by the Geagley Laboratory are identified in the table below.

Type of Testing	Description
Food Safety	Test for the presence of pathogens in food products in partnership with the Food and Drug Administration (FDA) and United State Department of Agriculture (USDA).
Dairy Product	Perform testing on dairy products, such as milk, yogurt, and cheese, to assure compliance with the Pasteurized Milk Ordinance and reduce risks to the human food supply at Michigan licensed dairy farms and dairy processing plants.
Animal Feed	Perform animal feed testing for compliance with safety, quality and label guarantees.
Pesticides and Toxins	Conduct testing on food for pesticide residues to find unsafe levels and collect data that is used in the pesticide registration risk assessment process conducted by the Environmental Protection Agency (EPA) in partnership with USDA, collects and. In partnership with EPA, environmental samples are tested for pesticide residues in response to drift and/or pesticide misuse complaints and pesticide products are tested for concentrations of active ingredients against label claims in compliance with pesticide registrations and laws.
Motor Fuel	Perform motor fuel testing for purity, quality, and environmental standards at Michigan's 4,700 gas stations. The testing is necessary to assure consumers receive quality gasoline rather than substandard fuel that can lead to costly car repairs.
Animal Disease	Test for animal diseases is conducted by the Geagley Laboratory to prevent the spread of diseases in animals that could jeopardize the human food supply and result in economic losses to the food and agriculture industry.
Plant Health	Conduct testing for plant disease that threaten Michigan's nursery industry and have the potential to negatively impact commerce.

b) Mandated Facility Standards for Program Implementation

The structural building must meet MIOSHA health and safety standards for laboratories (Part 431), ISO accommodation and environmental conditions standards (Section 5.3 of ISO 17025:2005), local building codes, and various other federal, state and local standards.

c) Functionality and Space Allocation

Most of the square footage is devoted to analytical testing and related support. Laboratory staff must be able to safely and efficiently perform chemical and biological analyses at Biological Safety Level 2 standards. Adequate work space is provided for each employee. For example, a laboratory hood with 2.5 linear feet of hood space per person should be provided for every two workers using chemicals. Storage space for chemicals, test organisms, etc. is also provided. The greenhouse and poly house structures provide adequate space to grow plants for disease testing and plant diagnostic support.

The Motor Fuels Quality structure addition, which was specially designed to handle flammable materials, is not capable of meeting the program expansion needs for diesel and biodiesel testing. There is insufficient space to properly handle and store additional fuels, and a lack of a secure area to safely dispense residual fuels left over from testing.

d) Replacement Value of Facility

The Geagley Laboratory has an estimated replacement value of \$30 million.

e) Utility System Condition

The mechanical system in the main laboratory and greenhouse facility, with consistent monitoring, can maintain the temperature and humidity levels required for analytical testing.

f) Facility Infrastructure Condition

The main structure is basically sound. The windows and some exterior panels, however, are showing signs of aging and deterioration. Capital Outlay funds over the last three years have helped to replace the roof, the elevator, replace some of the exterior panels, install new light sensors and insulate the exterior walls.

g) Adequacy of Existing Utilities and Infrastructure

The Geagley facility is adequately served by an all season road, natural gas, 480/3/60 electrical power, MSU campus water and City of East Lansing sewer, fiber optic network communication lines and facility backbone, and phone service.

h) Energy Audit

The Department of Environmental Quality's Retired Engineer Technical Assistance Program (RETAP) conducted an energy audit in January 2010. The audit indicated the laboratory has an extremely high energy use intensity (EUI) rate and recommended the Geagley Laboratory take additional steps to identify the possible causes and implement energy efficient solutions.

i) Land Owned by the Agency

The Geagley Laboratory is on 5.2 acres leased from MSU so there is limited capacity for future development.

E. C. Heffron Metrology Laboratory

MDARD's E. C. Heffron Metrology Laboratory is located at 940 Venture Lane in Williamston, Michigan. The Heffron Laboratory was built in 1997 with an addition in 2000. The Heffron Laboratory is 13,080 square feet located on 11.4 acres.

The Heffron Laboratory houses the Motor Fuels Quality (MFQ) and the Weights and Measures (WM) regulatory programs. The Motor Fuels Quality Program establishes and regulates the sale and quality of motor fuels through licensing, investigation, inspection, and sampling to ensure the fuels that consumers buy performs properly in their vehicles and abides by legal standards. The Weights and Measures Program regulates all commodities and services sold by weight, measure, or count to prevent economic fraud and deception and provide support to Michigan industries by providing mass, volume, and length calibrations that are in accordance with national standards.

a) **Building Utilization Rates**

The Heffron Laboratory is utilized from 7:30 am to 5:00 pm on regular state work days and also serves as a meeting facility for the department when needed. The building is also utilized as a backup Incident Command Center in the event of an emergency.

b) **Mandated Facility Standards for Program Implementation**

To conduct uninterrupted high precision calibrations, the facility must be in an area that keeps seismic anomalies at a minimum. Calibration rooms must be environmentally controlled to maintain temperature and humidity within given parameters and positively pressurized to prevent the influx of dust and debris. Airflow must be such that both currents and gradients are at a minimum. Specialized vibration dampening tables have been built that are separate from the rest of the building and extend 48" below grade. Floors must be electrostatically dissipative and electrical power must be conditioned to avoid any negative influence on high precision calibration and testing.

c) **Functionality and Space Allocation**

The MFQ and WM programs are housed in approximately 20% of the building while the metrology laboratory utilizes the other 80% for calibration, tooling and receiving.

d) **Replacement Value of Facility**

The Heffron Laboratory has an estimated replacement value of \$8 million.

e) **Utility System Condition**

The mechanical, electrical, and building controls are adequate for the intended purpose of the building.

f) **Facility Infrastructure Condition**

The main building is in good condition. The parking lot was repaved in late 2014. The shingled roof and flat/rubber roof was replaced in FY2009/2010. The facility lacks adequate storage capacity to house the large provers used by WM program requiring them to be left outside. This exposes this equipment to the elements resulting in quicker depreciation of value and shortens their useful life.

g) Adequacy of Existing Utilities and Infrastructure

The facility is adequately served by an all-season road, natural gas, 230/3/60 electrical power, fiber optic cable, phone service, and city water/sewer. Infrastructure improvements to consider would be 480/3/60 electrical power.

h) Energy Audit

In January 2010 the Michigan Department of Environmental Quality's Retired Engineer Technical Assistance Program (RETAP) team conducted an energy assessment of the E.C. Heffron Metrology Laboratory. Initial conversion of energy efficient lighting was conducted in FY11 with additional lighting to be retrofitted.

i) Land Owned by the Agency

Of the 11 acres, over 1/2 of the area is covered with protected wetlands. This area was chosen specifically because it was surrounded by land that could not be developed to prevent any other building within the immediate area to minimize seismic activities, which interfere with the metrology work.

IV. Implementation Plan

The following list includes maintenance needs MDARD should address at the Geagley and Heffron Laboratories, if adequate funding is made available. The Laboratory Division will be unable to fully and safely function without facility upgrades. Energy costs savings will occur with the upgrades and repairs. Many of the items are needed just to maintain testing capability with the benefits ultimately realized by people who are protected by the work conducted at the laboratory.

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Total	Impact (b)	Rate of return (c)
1	1	Water Filtration System (Moved forward from year 3 of the FY 2018 5 Year Plan)	Wm. Geagley Laboratory – East Lansing	\$350,000	<p>The Geagley Laboratory's main water is supplied by Michigan State University and is a very poor quality. MSU has two wells, and they switch wells without notice.</p> <p>Continued use of this water supply causes scale build up with incoming lines as well as instruments, boilers, and outgoing drains. Maintenance has been scheduling drains to be cleaned twice a year due to scale build up.</p>	A water filtration system would eliminate the need to have drains cleaned semi-annually, would eliminate problems with scale build up in lines, boilers, instruments, plumbing fixtures, and even flooring (as water is used for cleaning floors).
Submitted for FY2018 Capital Outlay; waiting approval.						
1	2	Fume Hood Installation	E C Heffron Metrology Laboratory - Williamston	\$100,000	<p>In December of 2016, the legislature amended the Weights and Measures Act (P.A. 283 of 1964) requiring the department to maintain oversight over motor oil. This includes testing to ensure its authenticity and labeled specifications. Fumes from testing may have detrimental health effects to laboratory staff. To reduce these effects, products should be opened and tested within a fume hood. Currently, there is no fume hood at the Heffron Laboratory.</p>	Installation of the hood will ensure that motor oil can be tested, the Division will be able to fulfill the requirements of the law, and consumers will be protected.
Submitted for FY2018 Capital Outlay; waiting approval.						
1	3	Environmental Efficiencies	<p>Wm. Geagley Laboratory – East Lansing</p> <p>E C Heffron Metrology Laboratory - Williamston</p>	\$150,000	<p>Both the Geagley and Heffron Laboratories seek to promote energy-efficient facilities and reduce facility energy consumption. Opportunities include installing energy-efficient lighting throughout facilities, installing occupancy dimmers and sensors, and window replacements that will reduce exterior air infiltration. These will reduce energy usage and increase reliability due to higher efficiencies.</p>	<p>The Lab Division currently spends over \$475,000 annually on building utilities for its laboratories. LED lighting with controls is typically one of the most cost effective and quickest solutions for lowering energy usage and energy cost. LED lighting/control upgrade will last 10 to 15 years and will result in an estimated reduction of energy use by as much as 50% to 75% over the existing lighting. Also, new energy-efficient windows can reduce energy costs by 35% through lower heating, cooling, and lighting expenses. Any cost savings we receive by utilizing these energy efficient improvements can then be spent on the addition of more analytical testing services for our customers.</p>
Submitted for FY2018 Capital Outlay; waiting approval.						

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Total	Impact (b)	Rate of return (c)
1	4	Condensate and Steam Pipe Replacement	Wm. Geagley Laboratory – East Lansing	\$850,000	The Geagley Laboratory seeks to promote energy-efficient facilities and reduce facility energy consumption. The objective of this project is to remove and replace approximately 1,500 feet of Steam and Condensate piping that services the Geagley Lab. Medium and Low-pressure steam is distributed throughout the site via a pipe distribution system. It has numerous steam leaks due to the pitting and erosion of steel piping that is evidenced by the multiple steam clouds and pooling of water throughout the building. The loss of steam requires a significant water make up addition back to the loop system. This water requires extreme heating, chemical treatment, and maintenance running it back through our soft water system. It creates a significant loss of boiler plant efficiency.	This demolition and replacement will result in a substantial decrease in boiler down time. Staff overtime costs will be drastically cut as our Maintenance staff spends 25% of their time keeping this system up and running, and almost all of overtime costs have been due to boiler issues. Complications with this system causes multiple emergency shutdowns annually. Other returns include the increased savings with using less salt, less boiler water treatment chemicals, and less natural gas consumption from not having to heat the cold make-up water. This also will create a reduction in repairs on various steam driven lab equipment, i.e. steam coils, autoclaves, unit heaters, and heat exchangers.
1	5	Self- Contained Eye Wash system	Wm. Geagley Laboratory – East Lansing	\$25,000	The Geagley Laboratory's main water is supplied by Michigan State University and is a very poor quality. MSU has two wells, and they switch wells without notice. Current eye wash system is directly connected to incoming water supply from Michigan State University.	Installation of self-contained eye wash systems would eliminate weekly system flushes. While system flushes show the water is clear, it is not uncommon for MSU to change wells shortly after a system flush. Using the current supply of water from MSU which contains excessive rust/hardness is not safe for flushing eyes in an emergency.
1	6	Restroom Renovation/Updates	Wm. Geagley Laboratory – East Lansing	\$50,000	Restroom fixtures and flooring need to be replaced due to normal wear and use of hard water.	Replacement of fixtures and flooring will decrease man hours needed to fix leaks and clean old floors.
Year 1 Total				\$1,525,000		
2	1	Replace Power and Automatic Ventilation System (Polyhouse)	Wm. Geagley Laboratory – East Lansing	\$15,000	The current ventilation system does not work and the structure lacks electrical power.	Creating a "closed" growing environment in the greenhouse will protect the plants against insects. Connection to a power supply will allow for temperature regulation and improve growing conditions.
2	2	Replace Cabinets, Countertops, and Flooring	Wm. Geagley Laboratory – East Lansing	\$250,000	Cabinets and countertops in the lab rooms and bathrooms need to be replaced due to normal wear and tear as well as from the chemicals used. Flooring throughout the laboratory needs to be repaired due to normal wear and tear as well as the chemicals used. Some updates to both the counters and flooring occurred in 2000.	Updates are needed to cabinets and counters to assure the long-term functionality of the laboratory.

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Total	Impact (b)	Rate of return (c)
2	3	Steam Coil Replacements	Wm. Geagley Laboratory – East Lansing	\$250,000	There are four air handlers at the Geagley Laboratory. The steam coils in these air handlers have reached their life expectancy and are starting to have regular repairs for leaks. Three steam coils have been replaced (2013, 2016, and 2017) Contractors have recommended that high priority be given to replacing the remaining steam coils to eliminate building down time.	Planned replacement of the steam coils will allow the laboratory staff to schedule routine sample analysis at non-critical times.
Year 2 Total				\$515,000		
3	1	Exhaust Fan Replacement	Wm. Geagley Laboratory – East Lansing	\$285,000	Exhaust fans, used to pull air out of the building are deteriorating. Due to the age of the fans, new technology would increase efficiencies in day to day utilities as well as increasing effectiveness of controls with new technology. Laboratories need to have negative pressure to eliminate chemicals from being transferred from room to room and/or to the exterior. The exhaust fans are what allow the negative pressure to be maintained and controlled throughout the building.	Replacement of these fans is important for the safety of the occupants and will increase the energy efficiency of the lab.
3	2	Upgrade HVAC System	Wm. Geagley Laboratory – East Lansing	\$400,000	The Geagley Laboratory is unable to adequately control the temperature and humidity in both the laboratory and office spaces. An HVAC update would improve climate control, minimizing re-testing and maintain employee health and safety.	These costs could be recouped in 3-4 years based on an estimated 5% improvement in initial test results and 2% potential energy savings per year.
Year 3 Total				\$685,000		
4	1	Replace Exterior Windows	Wm. Geagley Laboratory – East Lansing	\$1,108,500	Windows are original to the building and lack thermo breaks, as recommended in the Michigan Energy Code. Updated windows will reduce heating and cooling costs by increasing energy efficiency.	Energy savings would be realized through more energy efficient windows.
4	2	Replace Building Panels	Wm. Geagley Laboratory – East Lansing.	\$125,000	As the building ages, so do the exterior metal panels. Funding was received in FY13 to cover the costs of some panel replacements but it was insufficient to replace all the panels. Additional funding would allow for additional replacements, sealing, and increased insulation.	MDARD should see efficiencies in heating and cooling with updated and properly sealed insulation/panels.
Year 4 Total				\$1,233,500		

Year (1-5)	Priority	Project and Description (a)	Laboratory / Location	Total	Impact (b)	Rate of return (c)
5	1	Replace Additional Building Panels	Wm. Geagley Laboratory – East Lansing.	\$125,000	As the building ages, so do the exterior metal panels. Funding was received in FY13 to cover the costs of some panel replacements but it was insufficient to replace all the panels. Additional funding would allow for additional replacements, sealing, and increased insulation.	MDARD should see efficiencies in heating and cooling with updated and properly sealed insulation/panels.
Year 5 Total				\$125,000		
Total 5 Year Plan				\$4,085,000		